

Notice of Allowability**Application No.**

10/582,552

Examiner

MICHAEL ANDREWS

Applicant(s)

MORIYAMA ET AL.

Art Unit

2834

- The MAILING DATE of this communication appears on the cover sheet with the correspondence address-

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment filed September 6, 2011.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.
3. ☒ The allowed claim(s) is/are 27-29, 32-39 and 53.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: ____.

Applicant has **THREE MONTHS FROM THE "MAILING DATE"** of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
(a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
1) ☐ hereto or 2) ☐ to Paper No./Mail Date ____.
(b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date ____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date 20110914.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other ____.

/M. A./
Examiner, Art Unit 2834

/Quyen Leung/
Supervisory Patent Examiner, Art Unit 2834

DETAILED ACTION

This Office Action is responsive to the Applicant's communication filed September 6, 2011. In virtue of this communication and the amendment concurrently filed, claims 27-53 are pending in the application, with claims 28 and 37-52 being withdrawn from consideration.

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 6, 2011 has been entered.

Election/Restrictions

2. Claims 27-29, 32-39, and 53 are allowable. The restriction requirement between species, as set forth in the Office action mailed on July 6, 2009, has been reconsidered in view of the allowability of claims to the elected invention pursuant to MPEP § 821.04(a). **The restriction requirement is hereby withdrawn as to any claim that requires all the limitations of an allowable claim.** Claims 28 and 37-39, directed to non-elected species are no longer withdrawn from consideration because the claim(s) requires all the limitations of an allowable claim. However, claims 40-52, directed to a

non-elected invention are withdrawn from consideration because they do not require all the limitations of an allowable claim.

In view of the above noted withdrawal of the restriction requirement, applicant is advised that if any claim presented in a continuation or divisional application is anticipated by, or includes all the limitations of, a claim that is allowable in the present application, such claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application.

Once a restriction requirement is withdrawn, the provisions of 35 U.S.C. 121 are no longer applicable. See *In re Ziegler*, 443 F.2d 1211, 1215, 170 USPQ 129, 131-32 (CCPA 1971). See also MPEP § 804.01.

EXAMINER'S AMENDMENT

3. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.
4. Authorization for this examiner's amendment was given in a telephone interview with Nicholas Panno (68,513) on September 14, 2011, and a subsequent voicemail left the same day.
5. The application has been amended as follows:

Title: "Coreless Linear Motor Having a Non-Magnetic Reinforcing Member"

Claims:

27. (Currently Amended) A coreless linear motor comprising:

a fixed member functioning as a stator; and

a movable member functioning as an armature;

the fixed member having a yoke and first and second groups of permanent magnets fixed to the yoke;

the movable member having a coil assembly having an inner shape of a rectangle and a reinforcing member, the reinforcing member having an outer shape of a rectangle on which the coil assembly is fittingly mounted, the reinforcing member extending in a longitudinal direction of the linear motor, being not positioned in the magnetic field between the coil assembly and the first and second groups of permanent magnets, being made of a nonmagnetic, electrically and ~~thermal~~ **thermally** conductive material, conducting the heat generated in the coil assembly to an outside, and being formed without any hollow or cavity for increasing the rigidity of coil assembly;

the yoke having first and second facing yoke parts facing each other across a first distance and formed by magnetic material and a connection yoke part connecting first ends of the first and second facing yoke parts to define a space through which the movable member is movable, the first, second and connection yokes being formed by magnetic material;

the first and second groups of permanent magnets being arranged so as to face the facing surfaces of the first and second facing yoke parts, each of the first and second groups of permanent magnets having different magnetic poles alternately

arranged, along the longitudinal direction of the yoke, and the facing magnetic poles of the permanent magnets along the longitudinal direction of the yoke being the same;

the coil assembly having at least three coils, continuously arranged, functioning as three phase coils, and wound in a same direction having a hollow shape and rectangular or square outer shape, the nonmagnetic reinforcing member being fitted into the hollow shape, and arranged movably relative to the first and second groups of permanent magnets along the longitudinal direction of the yoke;

each coil being wound in a cylindrical form by a conductive metal wire;

the at least three coils being arranged in multiple layers, then fastened by a binder, the end surfaces of adjacent coils connected with each other via an electrical insulation member;

the coil assembly and reinforcing member moving in the space between the facing first and second groups of permanent magnets along the longitudinal directions of the yoke.

28. (Currently Amended) A coreless linear motor as set forth in claim 27 wherein, in the cross-sectional shape of each coil, a length facing the first and second groups of permanent magnets is longer than a length perpendicular to the first and second groups of permanent magnets.

Claims 30-31 are cancelled.

Claims 40-52 are cancelled.

Response to Arguments

6. Applicant's arguments, filed September 6, 2011 have been fully considered and are persuasive. The previous grounds of rejection have been withdrawn.

Allowable Subject Matter

7. Claims 27-29, 32-39, and 53 are allowed.

8. The following is an examiner's statement of reasons for allowance:

With regard to claim 27, the prior art does not disclose a coreless linear motor comprising:

a fixed member functioning as a stator; and

a movable member functioning as an armature;

the fixed member having a yoke and first and second groups of permanent magnets fixed to the yoke;

the movable member having a coil assembly having an inner shape of a rectangle and a reinforcing member, the reinforcing member having an outer shape of a rectangle on which the coil assembly is fittingly mounted, the reinforcing member extending in a longitudinal direction of the linear motor, being not positioned in the magnetic field between the coil assembly and the first and second groups of permanent magnets, being made of a nonmagnetic, electrically and thermally conductive material, conducting the heat generated in the coil assembly to an outside, and being formed without any hollow or cavity for increasing the rigidity of coil assembly;

the yoke having first and second facing yoke parts facing each other across a first distance and formed by magnetic material and a connection yoke part connecting

first ends of the first and second facing yoke parts to define a space through which the movable member is movable, the first, second and connection yokes being formed by magnetic material;

the first and second groups of permanent magnets being arranged so as to face the facing surfaces of the first and second facing yoke parts, each of the first and second groups of permanent magnets having different magnetic poles alternately arranged, along the longitudinal direction of the yoke, and the facing magnetic poles of the permanent magnets along the longitudinal direction of the yoke being the same;

the coil assembly having at least three coils, continuously arranged, functioning as three phase coils, and wound in a same direction having a hollow shape and rectangular or square outer shape, the nonmagnetic reinforcing member being fitted into the hollow shape, and arranged movably relative to the first and second groups of permanent magnets along the longitudinal direction of the yoke;

each coil being wound in a cylindrical form by a conductive metal wire;

the at least three coils being arranged in multiple layers, then fastened by a binder, the end surfaces of adjacent coils connected with each other via an electrical insulation member;

the coil assembly and reinforcing member moving in the space between the facing first and second groups of permanent magnets along the longitudinal directions of the yoke.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Inquiry

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Andrews whose telephone number is (571)270-7554. The examiner can normally be reached on Monday through Thursday between the hours of 8:30 and 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Quyen Leung can be reached at (571)272-8188. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Quyen Leung/
Supervisory Patent Examiner, Art Unit 2834

/M. A./
Examiner, Art Unit 2834